PATENT ABSTRACTS OF JAPAN

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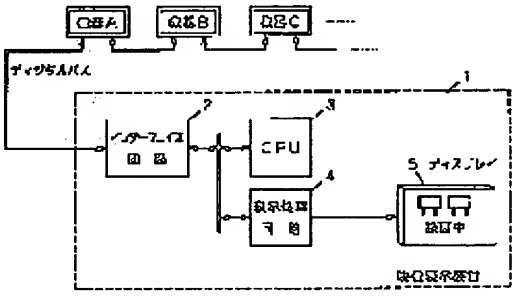
(54) VIDEO DISPLAY DEVICE

(57)Abstract:
PROBLEM TO BE SOLVED: To display overall state of an electronic device connecting to a digital bus such as an IEEE1394 bus.
SOLUTION: An interface circuit 2 decodes all control signals of a digital bus and the decoded data are given to a CPU 3. The CPU 3 applies arithmetic/ analysis processing of a state of a device connecting to the digital bus to the received data and generates display data. The display data are subjected to arithmetic operation by display processing circuit 4 and displayed on a display device 5.



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CLAIMS

[Claim(s)]
[Claim 1] The display unit characterized by reading the control information in the various information which is flowing into the aforementioned digital bus in the display unit connected with a device by digital bus, and displaying graphically the operating state of the aforementioned device, or a connection state with the aforementioned device on a screen.
[Claim 2] The display unit characterized by to display graphically the state of the device which possesses the display unit which displays the data of CPU which performs decoding of the data from the interface circuitry and the aforementioned interface circuitry of the digital bus which performs the interconnection between devices, and creation of the data of the after-mentioned display-processing circuit, the display-processing circuit which performs display processing of the data sent from Above CPU, and the aforementioned display-processing circuit, reads the control information of a digital bus, and is connected by the digital bus.
[Claim 3] The display unit characterized by what the control information in the various information which is flowing into the aforementioned digital bus is read in the display unit connected with a device by digital bus, and the content is memorized, and is displayed on a screen.
[Claim 4] The display unit which is equipped with the following, reads the control information of a digital bus, memorizes the content, and is characterized by displaying the result. The interface circuitry of a digital bus which performs the interconnection between devices. CPU which performs creation for decoding of the data from the aforementioned interface circuitry, record in the after-mentioned memory of the content, and the data of the after-mentioned display-processing circuit. Memory which stores the state of the digital bus detected with Above CPU. The display which displays the data of the display-processing circuit which performs display processing of the data sent from Above CPU, and the aforementioned display-processing circuit.

[Claim 5] The display unit characterized by to input operation of the aforementioned device by touching the aforementioned screen, to send the control signal to the aforementioned device, and to display the running state on the aforementioned screen while reading the control information in the various information which is flowing into the aforementioned digital bus in the display unit connected with a device by digital bus and displaying the operating state of the aforementioned device on a screen graphically.
[Claim 6] The display unit which is equipped with the following, displays graphically the state of the device which reads the control information of a digital bus and is connected by digital bus, publishes the control signal to the device which people input operation of those devices with a finger, and is connected based on the result in it, and is characterized by expressing the running state as real time. The interface circuitry of a digital bus which performs the interconnection between devices. CPU which calculates the result of decoding of the data from the aforementioned interface, creation of the data of the after-mentioned display-processing circuit, and the after-mentioned detection equipment, and performs data sending to the aforementioned interface circuitry. The display-processing circuit which performs display processing of the data sent from Above CPU. The detector which decodes the result of the display which displays the

data of the aforementioned display-processing circuit, the detection equipment which detects the information which touched the front face of the aforementioned display with the finger, and the aforementioned detection equipment, and transmits to Above CPU.
[Claim 7] The display unit characterized by displaying the content on a screen in piles at a video signal if the control information in the various information which is flowing into the aforementioned digital bus is read in the display unit connected with a device by digital bus and the operating state of the aforementioned device has change.
[Claim 8] The interface circuitry of a digital bus which performs the interconnection between devices, Decoding of the data from the aforementioned interface circuitry, and CPU which performs creation for the data of the after-mentioned display-processing circuit, The display-processing circuit which performs display processing of the data sent from Above CPU, and the display which displays the data of the aforementioned display-processing circuit, The transfer device which changes the video-signal processing circuit which decodes the video signal inputted, and the output of the aforementioned display-processing circuit and the output of a video-signal processing circuit is provided. The display unit characterized by expressing the content to a video signal as real time in piles if the control information of a digital bus is read and the state has change.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[The technical field to which invention belongs] this invention relates to the display unit connected to digital buses, such as IEEE1394.
[0002]
[Description of the Prior Art] The electronic equipment connected to the conventional digital bus is composition as shown in JP,8-51447,A. This is shown in drawing 10 and the operation is explained briefly.
[0003] The input selection key 101 and the output state display Light Emitting Diode 102 are formed in the device connected to digital buses, such as IEEE1394. The output state display Light Emitting Diode 102 is turned on when the light is put out while not outputting synchronous transmission data, and it is under output. Furthermore, when chosen as an input device from other communication equipment, it blinks.
[0004]
[Problem(s) to be Solved by the Invention] However, when arranged with such composition at the connection state of many devices, operating state, or the long distance, it is difficult to manage the state of each device synthetically, and it is difficult to show the fine operating state of each device.
[0005]
[Means for Solving the Problem] The display which displays the signal which CPU which the display unit of this invention processes the control signal with the interface circuitry of a digital bus which reads the control signal with which the display unit is flowing the state of the device connected by digital bus into the digital bus in order to solve the aforementioned technical problem, and creates an indicative data, the display-processing circuit which uses as image data the indicative data which Above CPU created, and the aforementioned display-processing circuit created provides.
[0006]
[Embodiments of the Invention]
(Gestalt 1 of operation) The example of a gestalt of implementation of invention of the 1st of this invention is hereafter explained using drawing 1 , drawing 2 , and drawing 3 .
[0007] In drawing 1 , CPU by which display units, such as a television set, and 2 control the interface circuitry of digital buses, such as IEEE1394, and, as for 3, 1 controls the whole display unit of 1, the display-processing circuit which carries out data processing of the graphical data which the data which created 4 by CPU of 3 control, and 5 are displays which display a video signal.
[0008] The display unit of 1 is connected to some devices as a digital bus shows to drawing 1 . And each device is performing delivery of a video signal or a control signal through digital bus **. The example of data of a digital bus is shown in drawing 3 . A digital bus is transmitted for every data unit of a certain unit called packet. Each packet consists of data, such as the control signal and image of a device, and voice. Thus, the interface circuitry of 2 of drawing 1 decodes all control signals for the digital data to transmit, and the data is transmitted to CPU of 3.

[0009] CPU3 performs operation/analysis processing of the state of the device connected to the digital bus from the transmitted data, and creates an indicative data. An indicative data is calculated in the display-processing circuit of 4, and is displayed on the display of 5. The display-processing circuit of 4 is included to a graphic operation circuit which performs a three-dimensional display from an easy OSD processing circuit. The example of a display is shown in drawing 2 . The information from the device which makes external connection is transmitted through a digital bus, and all the devices connected further are graphically displayed on a display 5, and information, such as operating state of each device, is displayed.
[0010] By the above composition, while a televiewer looks at [in / a picture / for the connection state of a device] the picture, the connection state of a device can be recognized.
[0011] (Gestalt 2 of operation) The example of a gestalt of implementation of invention of the 2nd of this invention is hereafter explained using drawing 4 , drawing 5 , and drawing 3 .
[0012] In drawing 4 display units, such as a television set, and 2 11 The interface circuitry of digital buses, such as IEEE1394 CPU by which 3 controls the whole display unit of 1, the display-processing circuit which carries out data processing of the graphical data which the data which created 4 by CPU of 3 control, The memory in which 12 stores the history of a digital bus of operation, the remote control whose 14 gives an instruction to the display unit's of 11, the user interface circuit where 13 decodes the data from remote control of 14, and 5 are displays which display a video signal.
[0013] it is shown in drawing 4 -- some devices are connected to the display unit of 11 through the digital bus And each device is performing delivery of a video signal or a control signal through the digital bus. The example of data of a digital bus is shown in drawing 3 . A digital bus is transmitted for every data unit of a certain unit called packet. Each packet consists of data, such as the control signal and image of a device, and voice. Thus, the interface circuitry of 2 of drawing 4 decodes all control signals for the digital data to transmit, and the data is transmitted to CPU of 3. CPU3 performs operation/analysis processing of the state of each device connected to the digital bus from the transmitted data, and controls it to memorize the state in the memory of 12.
[0014] From remote control of 14, if an instruction of a history display enters, an instruction will be transmitted to CPU3 by the user through a user interface 13. CPU3 which received the instruction reads historical data from memory 12, and creates an indicative data by CPU of 3. An indicative data is calculated in the display-processing circuit of 4, and is displayed on the display of 5. The display-processing circuit of 4 is included to a graphic operation circuit which performs a three-dimensional display from an easy OSD processing circuit.
[0015] The example of a display is shown in drawing 5 . The operating state (time / operating state / title) of a certain period is displayed in text form. Moreover, this invention contains what can choose and perform operation of this history screen by remote control of 14, when carrying out the same operation as operation performed in the past.
[0016] By the above composition, since the history of the connection state of a digital bus can be made to memorize, the history of the electronic equipment connected by digital bus of operation can be checked by eye one.
[0017] (Gestalt 3 of operation) The gestalt of implementation of invention of the 3rd of this invention is hereafter explained using drawing 6 , drawing 7 , and drawing 3 .
[0018] In drawing 6 , CPU by which display units, such as a television set, and 2 control the interface circuitry of digital buses, such as IEEE1394, and, as for 3, 21 controls the whole display unit of 1, the display-processing circuit which carries out data processing of the graphical data which the data which created 4 by CPU of 3 control, and 22 are displays on which a touch panel and 23 display a detector and 5 displays a video signal.
[0019] The display unit of 21 is connected to some devices as a digital bus shows to drawing 6 . And each device is performing delivery of a video signal or a control signal through digital bus **.

[0020] The example of data of a digital bus is shown in drawing 3 . A digital bus is transmitted for every data unit of a certain unit called packet. Each packet consists of data, such as the control signal and image of a device, and voice. Thus, the interface circuitry of 2 of drawing 6 decodes

all control signals for the digital data to transmit, and the data is transmitted to CPU of 3. CPU performs operation/analysis processing of the state of the device connected to the digital bus from the transmitted data, and creates an indicative data. An indicative data is calculated in the display-processing circuit of 4, and is displayed on the display of 5. A user transmits data to CPU3 through the detector 23 which detects the output of the touch panel of 22 on which the operation was interactively stuck in the front face of the display of 23, and this touch panel 22, looking at the displayed graphical data. In CPU3, the content of a display is changed according to the result. In addition, the display-processing circuit 4 is included to a graphic operation circuit which performs a three-dimensional display from an easy OSD processing circuit.

[0021] The example of a display of a display 5 is shown in drawing 7 . While displaying all the devices connected graphically and displaying information, such as operating state of each device, it has the screen of selection of operation.

[0022] By the above composition, connection, control, etc. of each electronic equipment which are connected to the display unit 21 on the screen can operate a user easily by the display unit's 21 could display the connection state of the electronic equipment connected by digital bus in the screen, and the user's could check the connection state at a glance, and having the touch panel. Since it is displaying graphically especially, those who do not get used to information machines and equipment, such as a person advanced in age, can also treat easily.

[0023] (Gestalt 4 of operation) The example of a gestalt of implementation of invention of the 4th of this invention is hereafter explained using drawing 8 , drawing 9 , and drawing 3 .

[0024] CPU by which display units, such as a television set, and 2 control the interface circuitry of digital buses, such as IEEE1394, and, as for 3, 31 controls the whole display unit of 1 in drawing 8 , the display-processing circuit which carries out data processing of the graphical data which the data which created 4 by CPU of 3 control, the video-signal processing circuit which decodes the video signal into which 32 was inputted, the synthetic circuit where 33 compounds a video signal, and 5 are displays which display a video signal. 34 is a change means to change the video signal inputted from the signal and the outside from an interface circuitry 2, and to make it input into a video-signal processor.

[0025] Operation of this example of composition is explained. The display unit of 31 is connected to some devices as a digital bus shows to drawing 8 . And each device is performing delivery of a video signal or a control signal through digital bus **. The example of data of a digital bus is shown in drawing 3 . A digital bus is transmitted for every data unit of a certain unit called packet. Each packet consists of data, such as the control signal and image of a device, and voice. Thus, the interface circuitry of 2 of drawing 8 decodes all control signals for the digital data to transmit, and the data is transmitted to CPU of 3.

[0026] CPU3 performs operation/analysis processing of the state of each device connected to the digital bus from the transmitted data, and detects change of the state. And only when change is detected, an indicative data is created, and the indicative data is calculated in the display-processing circuit of 4, is compounded in the video signal and the synthetic circuit of 33 by which decoding was carried out by 32, and is displayed on the display of 5. In addition, the display-processing circuit 4 is included to a graphic operation circuit which performs a three-dimensional display from an easy OSD processing circuit.

[0027] The example of the display unit of such composition of operation is shown. The television signal to which the user (or televiewer) is transmitted is received, when displaying on a display 5 and looking, it changes and the means 34 is connected to the video-signal input terminal side. When you want to know the connection state of each device connected to the display unit 31 through the digital bus in such a state, Or the data of the information from a device are inputted into the display-processing circuit 4 through a digital bus and an interface circuitry 2, and it is outputted as a result of calculating, and in the synthetic circuit 33, it is compounded with the video-signal processing circuit 32 and displayed on an image on a screen to perform control of each device and operation.

[0028] Moreover, when the change means 34 is connected to the interface circuitry 2, the image information data from each device are decoded by the video-signal processing circuit 32, are compounded in other informational data and synthetic circuits 33 which were outputted from the

display-processing circuit 4, and are displayed on a screen. In addition, the change means 34 carries out a connection change with a user's hand control at an interface 2 or video-signal input terminal side, and may be automatically changed according to the information inputted from a digital bus.

[0029] The example of a display of the display 5 of the display unit of such composition is shown in drawing 9 . Drawing 9 (a) is usually a screen, and only when the state of the device connected has change, it displays the situation of the change of a connection device to a video signal on a video signal in piles like drawing 9 (b). What is displayed in written form, the thing to display by the graphic, the thing to display on a window, and the thing which indicates by the telop are included in the method of presentation of this invention. Moreover, a speech generation device is provided, it is similar to voice or it, and what is told is included.

[0030] As mentioned above, since the display unit of the gestalt of this operation can display in piles the state of each external device connected by digital bus on the image of television broadcasting on a screen even if it is a time of viewing and listening to television broadcasting on a screen, it does not need to erase and display a picture and is time very effective.

[0031] Moreover, the information from an external device can be displayed as image information on a screen in piles by the change means.

[0032]

[Effect of the Invention] As mentioned above, according to the display unit of invention of the 1st of this invention, the connection state of the electronic equipment connected by digital bus can be displayed on one screen, and a user can check the state at a glance.

[0033] Moreover, according to the display unit of invention of the 2nd of this invention, the history of the electronic equipment connected by digital bus of operation can be checked by eye one. For example, it is effective when the image recorded on videotape to DVC does not understand some anymore.

[0034] Moreover, according to the display unit of the 3rd invention, the connection state of the electronic equipment connected by digital bus can be displayed on one screen, a user can check the state at a glance, and a user can realize control of the electronic equipment connected on the screen. Since it is displaying graphically especially, those who do not get used to information machines and equipment, such as a person advanced in age, can also treat easily.

[0035] Furthermore, according to the display unit of invention of the 4th of this invention, even if it is viewing and listening to another video signal with the display unit, it becomes possible to tell a user about operation of electronic equipment by displaying the change information on the video signal which is viewing and listening to change of operation of the electronic equipment connected by digital bus now in piles.

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TECHNICAL FIELD

[The technical field to which invention belongs] this invention relates to the display unit connected to digital buses, such as IEEE1394.

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PRIOR ART

[Description of the Prior Art] The electronic equipment connected to the conventional digital bus is composition as shown in JP,8-51447,A. This is shown in drawing 10 and the operation is explained briefly.
[0003] The input selection key 101 and the output state display Light Emitting Diode 102 are formed in the device connected to digital buses, such as IEEE1394. The output state display Light Emitting Diode 102 is turned on when the light is put out while not outputting synchronous transmission data, and it is under output. Furthermore, when chosen as an input device from other communication equipment, it blinks.

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EFFECT OF THE INVENTION

[Effect of the Invention] As mentioned above, according to the display unit of invention of the 1st of this invention, the connection state of the electronic equipment connected by digital bus can be displayed on one screen, and a user can check the state at a glance.
[0033] Moreover, according to the display unit of invention of the 2nd of this invention, the history of the electronic equipment connected by digital bus of operation can be checked by eye one. For example, it is effective when the image recorded on videotape to DVC does not understand some anymore.
[0034] Moreover, according to the display unit of the 3rd invention, the connection state of the electronic equipment connected by digital bus can be displayed on one screen, a user can check the state at a glance, and a user can realize control of the electronic equipment connected on the screen. Since it is displaying graphically especially, those who do not get used to information machines and equipment, such as a person advanced in age, can also treat easily.
[0035] Furthermore, according to the display unit of invention of the 4th of this invention, even if it is viewing and listening to another video signal with the display unit, it becomes possible to tell a user about operation of electronic equipment by displaying the change information on the video signal which is viewing and listening to change of operation of the electronic equipment connected by digital bus now in piles.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, when arranged with such composition at the connection state of many devices, operating state, or the long distance, it is difficult to manage the state of each device synthetically, and it is difficult to show the fine operating state of each device.

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MEANS

[Means for Solving the Problem] The display which displays the signal which CPU which the display unit of this invention processes the control signal with the interface circuitry of a digital bus which reads the control signal with which the display unit is flowing the state of the device connected by digital bus into the digital bus in order to solve the aforementioned technical problem, and creates an indicative data, the display-processing circuit which uses as image data the indicative data which Above CPU created, and the aforementioned display-processing circuit created provides.
[0006]
[Embodiments of the Invention]
(Gestalt 1 of operation) The example of a gestalt of implementation of invention of the 1st of this invention is hereafter explained using drawing 1 , drawing 2 , and drawing 3 .
[0007] In drawing 1 , CPU by which display units, such as a television set, and 2 control the interface circuitry of digital buses, such as IEEE1394, and, as for 3, 1 controls the whole display unit of 1, the display-processing circuit which carries out data processing of the graphical data which the data which created 4 by CPU of 3 control, and 5 are displays which display a video signal.
[0008] The display unit of 1 is connected to some devices as a digital bus shows to drawing 1 . And each device is performing delivery of a video signal or a control signal through digital bus **. The example of data of a digital bus is shown in drawing 3 . A digital bus is transmitted for every data unit of a certain unit called packet. Each packet consists of data, such as the control signal and image of a device, and voice. Thus, the interface circuitry of 2 of drawing 1 decodes all control signals for the digital data to transmit, and the data is transmitted to CPU of 3.
[0009] CPU3 performs operation/analysis processing of the state of the device connected to the digital bus from the transmitted data, and creates an indicative data. An indicative data is calculated in the display-processing circuit of 4, and is displayed on the display of 5. The display-processing circuit of 4 is included to a graphic operation circuit which performs a three-dimensional display from an easy OSD processing circuit. The example of a display is shown in drawing 2 . The information from the device which makes external connection is transmitted through a digital bus, and all the devices connected further are graphically displayed on a display 5, and information, such as operating state of each device, is displayed.
[0010] By the above composition, while a televiewer looks at [in / a picture / for the connection state of a device] the picture, the connection state of a device can be recognized.
[0011] (Gestalt 2 of operation) The example of a gestalt of implementation of invention of the 2nd of this invention is hereafter explained using drawing 4 , drawing 5 , and drawing 3 .
[0012] In drawing 4 display units, such as a television set, and 2 11 The interface circuitry of digital buses, such as IEEE1394 CPU by which 3 controls the whole display unit of 1, the display-processing circuit which carries out data processing of the graphical data which the data which created 4 by CPU of 3 control, The memory in which 12 stores the history of a digital bus of operation, the remote control whose 14 gives an instruction to the display unit's of 11, the user interface circuit where 13 decodes the data from remote control of 14, and 5 are displays which display a video signal.

[0013] it is shown in drawing 4 -- some devices are connected to the display unit of 11 through the digital bus And each device is performing delivery of a video signal or a control signal through the digital bus. The example of data of a digital bus is shown in drawing 3 . A digital bus is transmitted for every data unit of a certain unit called packet. Each packet consists of data, such as the control signal and image of a device, and voice. Thus, the interface circuitry of 2 of drawing 4 decodes all control signals for the digital data to transmit, and the data is transmitted to CPU of 3. CPU3 performs operation/analysis processing of the state of each device connected to the digital bus from the transmitted data, and controls it to memorize the state in the memory of 12.
[0014] From remote control of 14, if an instruction of a history display enters, an instruction will be transmitted to CPU3 by the user through a user interface 13. CPU3 which received the instruction reads historical data from memory 12, and creates an indicative data by CPU of 3. An indicative data is calculated in the display-processing circuit of 4, and is displayed on the display of 5. The display-processing circuit of 4 is included to a graphic operation circuit which performs a three-dimensional display from an easy OSD processing circuit.
[0015] The example of a display is shown in drawing 5 . The operating state (time / operating state / title) of a certain period is displayed in text form. Moreover, this invention contains what can choose and perform operation of this history screen by remote control of 14, when carrying out the same operation as operation performed in the past.
[0016] By the above composition, since the history of the connection state of a digital bus can be made to memorize, the history of the electronic equipment connected by digital bus of operation can be checked by eye one.
[0017] (Form 3 of operation) The form of implementation of invention of the 3rd of this invention is hereafter explained using drawing 6 , drawing 7 , and drawing 3 .
[0018] In drawing 6 , CPU by which display units, such as a television set, and 2 control the interface circuitry of digital buses, such as IEEE1394, and, as for 3, 21 controls the whole display unit of 1, the display-processing circuit which carries out data processing of the graphical data which the data which created 4 by CPU of 3 control, and 22 are displays on which a touch panel and 23 display a detector and 5 displays a video signal.
[0019] The display unit of 21 is connected to some devices as a digital bus shows to drawing 6 . And each device is performing delivery of a video signal or a control signal through digital bus **.

[0020] The example of data of a digital bus is shown in drawing 3 . A digital bus is transmitted for every data unit of a certain unit called packet. Each packet consists of data, such as the control signal and image of a device, and voice. Thus, the interface circuitry of 2 of drawing 6 decodes all control signals for the digital data to transmit, and the data is transmitted to CPU of 3. CPU performs operation/analysis processing of the state of the device connected to the digital bus from the transmitted data, and creates an indicative data. An indicative data is calculated in the display-processing circuit of 4, and is displayed on the display of 5. A user transmits data to CPU3 through the detector 23 which detects the output of the touch panel of 22 on which the operation was interactively stuck in the front face of the display of 23, and this touch panel 22, looking at the displayed graphical data. In CPU3, the content of a display is changed according to the result. In addition, the display-processing circuit 4 is included to a graphic operation circuit which performs a three-dimensional display from an easy OSD processing circuit.
[0021] The example of a display of a display 5 is shown in drawing 7 . While displaying all the devices connected graphically and displaying information, such as operating state of each device, it has the screen of selection of operation.
[0022] By the above composition, connection, control, etc. of each electronic equipment which are connected to the display unit 21 on the screen can operate a user easily by the display unit's 21 could display the connection state of the electronic equipment connected by digital bus in the screen, and the user's could check the connection state at a glance, and having the touch panel. Since it is displaying graphically especially, those who do not get used to information machines and equipment, such as a person advanced in age, can also treat easily.
[0023] (Gestalt 4 of operation) The example of a gestalt of implementation of invention of the

4th of this invention is hereafter explained using drawing 8 , drawing 9 , and drawing 3 .
[0024] CPU by which display units, such as a television set, and 2 control the interface circuitry of digital buses, such as IEEE1394, and, as for 3, 31 controls the whole display unit of 1 in drawing 8 , the display-processing circuit which carries out data processing of the graphical data which the data which created 4 by CPU of 3 control, the video-signal processing circuit which decodes the video signal into which 32 was inputted, the synthetic circuit where 33 compounds a video signal, and 5 are displays which display a video signal. 34 is a change means to change the video signal inputted from the signal and the outside from an interface circuitry 2, and to make it input into a video-signal processor.
[0025] Operation of this example of composition is explained. The display unit of 31 is connected to some devices as a digital bus shows to drawing 8 . And each device is performing delivery of a video signal or a control signal through digital bus **. The example of data of a digital bus is shown in drawing 3 . A digital bus is transmitted for every data unit of a certain unit called packet. Each packet consists of data, such as the control signal and image of a device, and voice. Thus, the interface circuitry of 2 of drawing 8 decodes all control signals for the digital data to transmit, and the data is transmitted to CPU of 3.
[0026] CPU3 performs operation/analysis processing of the state of each device connected to the digital bus from the transmitted data, and detects change of the state. And only when change is detected, an indicative data is created, and the indicative data is calculated in the display-processing circuit of 4, is compounded in the video signal and the synthetic circuit of 33 by which decoding was carried out by 32, and is displayed on the display of 5. In addition, the display-processing circuit 4 is included to a graphic operation circuit which performs a three-dimensional display from an easy OSD processing circuit.
[0027] The example of the display unit of such composition of operation is shown. The television signal to which the user (or televiewer) is transmitted is received, when displaying on a display 5 and looking, it changes and the means 34 is connected to the video-signal input terminal side. When you want to know the connection state of each device connected to the display unit 31 through the digital bus in such a state, Or the data of the information from a device are inputted into the display-processing circuit 4 through a digital bus and an interface circuitry 2, and it is outputted as a result of calculating, and in the synthetic circuit 33, it is compounded with the video-signal processing circuit 32 and displayed on an image on a screen to perform control of each device and operation.
[0028] Moreover, when the change means 34 is connected to the interface circuitry 2, the image information data from each device are decoded by the video-signal processing circuit 32, are compounded in other informational data and synthetic circuits 33 which were outputted from the display-processing circuit 4, and are displayed on a screen. In addition, the change means 34 carries out a connection change with a user's hand control at an interface 2 or video-signal input terminal side, and may be automatically changed according to the information inputted from a digital bus.
[0029] The example of a display of the display 5 of the display unit of such composition is shown in drawing 9 . Drawing 9 (a) is usually a screen, and only when the state of the device connected has change, it displays the situation of the change of a connection device to a video signal on a video signal in piles like drawing 9 (b). What is displayed in written form, the thing to display by the graphic, the thing to display on a window, and the thing which indicates by the telop are included in the method of presentation of this invention. Moreover, a speech generation device is provided, it is similar to voice or it, and what is told is included.
[0030] As mentioned above, since the display unit of the gestalt of this operation can display in piles the state of each external device connected by digital bus on the image of television broadcasting on a screen even if it is a time of viewing and listening to television broadcasting on a screen, it does not need to erase and display a picture and is time very effective.
[0031] Moreover, the information from an external device can be displayed as image information on a screen in piles by the change means.

[Translation done.]

* NOTICES *

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1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] The block diagram of the display unit of the gestalt 1 of operation of this invention
[Drawing 2] Drawing showing the example of a display on the display of the display unit of the gestalt 1 of operation of this invention
[Drawing 3] Drawing showing the example of data of the digital bus of this invention
[Drawing 4] The block diagram of the display unit of the gestalt 2 of operation of this invention
[Drawing 5] Drawing showing the example of a display on the display of the display unit of the gestalt 2 of ** of a real this invention
[Drawing 6] The block diagram of the display unit of the gestalt 3 of operation of this invention
[Drawing 7] Drawing showing the example of a display on the display of the display unit of the gestalt 3 of ** of a real this invention
[Drawing 8] The block diagram of the gestalt 4 of operation of this invention
[Drawing 9] Drawing showing the example of a display of the gestalt 4 of operation of this invention
[Drawing 10] Drawing showing the example of the conventional display unit
[Description of Notations]
1, 11, 21, and 31 Display unit
2 Display of Interface Circuitry and Display-Processing Circuit
12 Memory, User Interface Circuit, Remote Control
22 Touch Panel
32 Video-Signal Processing Circuit
33 Synthetic Circuit

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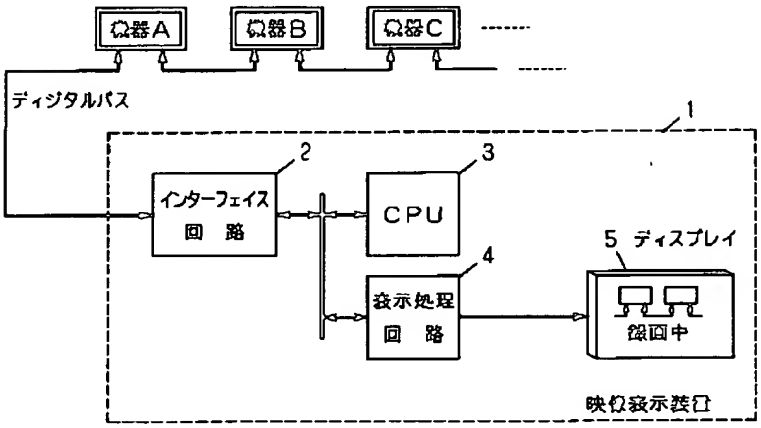
DRAWINGS

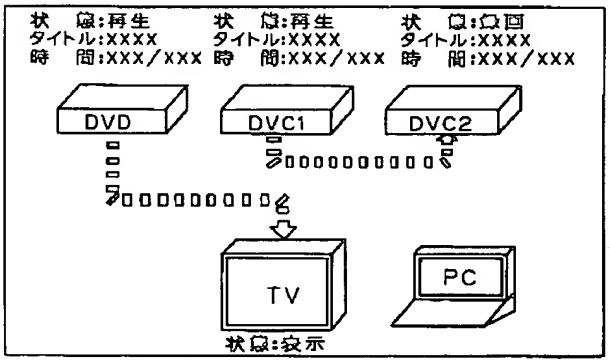
[Drawing 1]

実施の形態1のブロック図



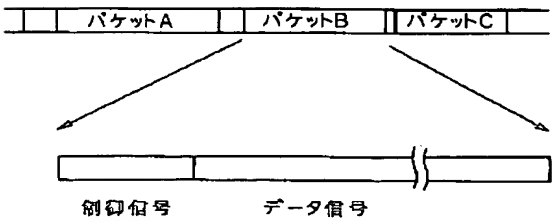
[Drawing 2]

実施の形態2の表示例



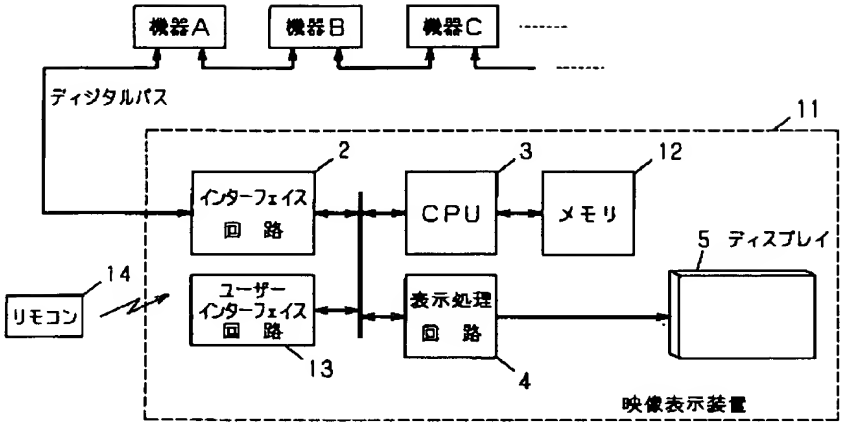
[Drawing 3]

ディジタルバスのデータ例



[Drawing 4]

実施の形態２のブロック図



[Drawing 5]

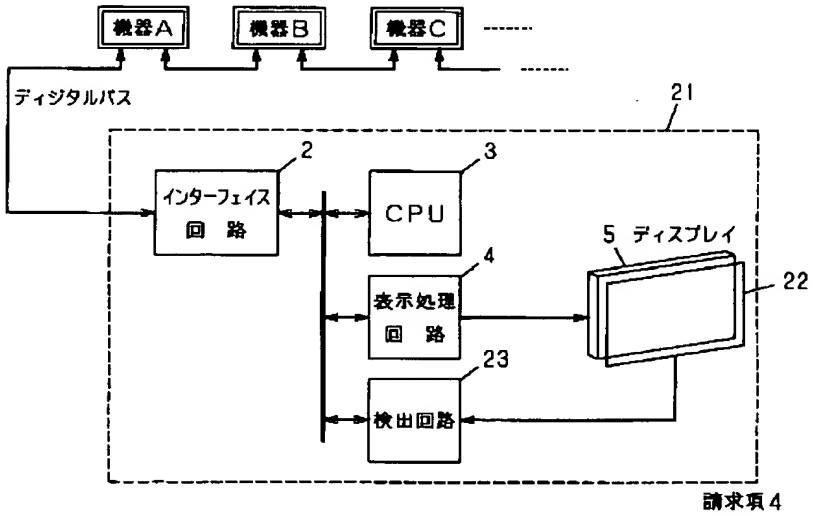
実施の形態２の表示例

ヒストリー画面:

日	スタート	終了	動作	
8月5日	18:00	19:00	テレビ録画	DVD1 テープXX
8月5日	20:00	~21:54	ダビング	DVD1→DVD2 テープXX
	：		：	
	：		：	
	：		：	

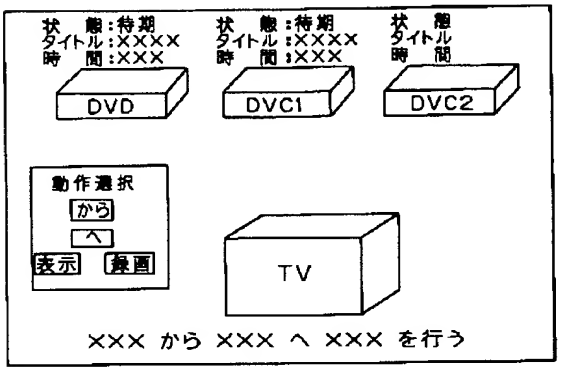
[Drawing 6]

実施の形態３のブロック図



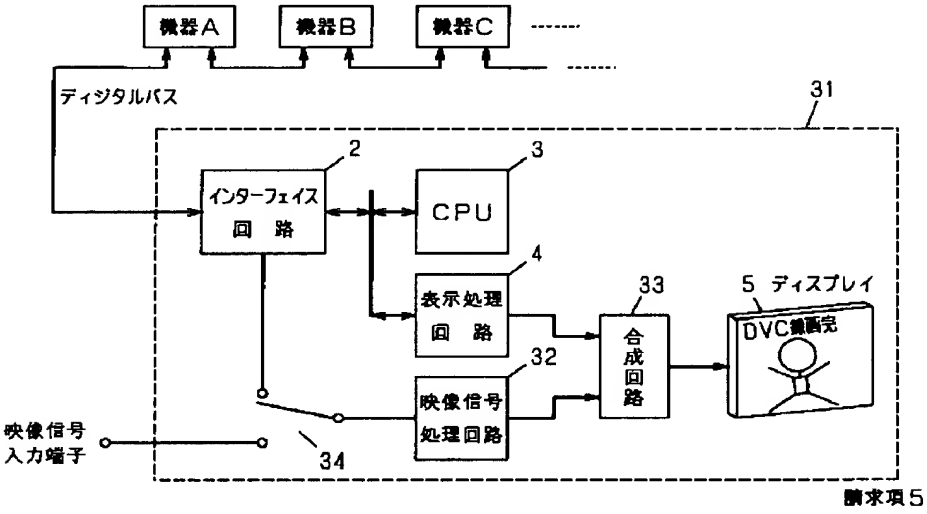
[Drawing 7]

実施の形態3の表示例



[Drawing 8]

実施の形態4のブロック図

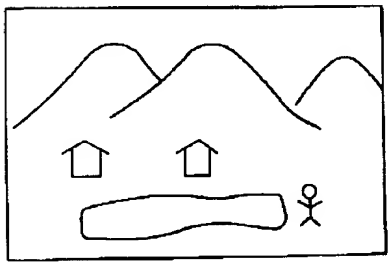


請求項5

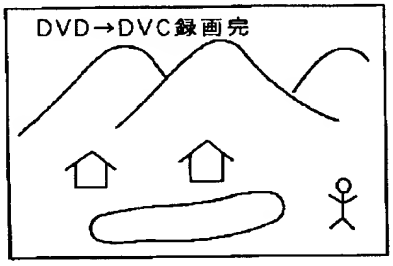
[Drawing 9]

実施の形態4の表示例

(a)通常画面

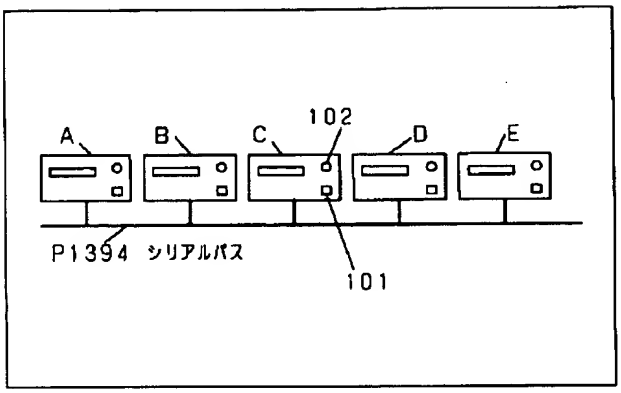


(b)接続機器に変化が生じたときの画面



[Drawing 10]

従来の実施例



[Translation done.]